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Nicolas Ibrahim

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WESTMAN CHAMPLIN & KELLY, P.A.  
SUITE 1400  
900 SECOND AVENUE SOUTH  
MINNEAPOLIS, MN 55402

EXAMINER

SHEN, QUN

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/589,542	<b>Applicant(s)</b> IBRAHIM ET AL.	
	<b>Examiner</b> QUN SHEN	<b>Art Unit</b> 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/21/07</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This communication is a First Action non Final on the merits. Claims 1-24, as preliminarily amended, are currently pending and have been considered below.

#### ***Priority***

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. France 04/01545, filed on February 16, 2004.

#### ***Drawings***

3. Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g)(see pars 008, 0019, 0061-0063 of specification (US 2008/0248806 A1)). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Art Unit: 2617

### ***Claim Objection***

4. Claims 1, 5, 8, 11-13, 17, and 20-21, 23-24 are objected to because of the following informalities:

Claim 5 recites "wherein the principal channel and/or supplementary channel ..." in line 2 of claim 5, page 3. Claims 8, 11-13, 17, and 20-21 also recite "and/or" in respective lines of the claims. "and/or" renders indefinite.

For examination purpose, and/or is construed as **or**.

Claim 1 recites "a two-directional symmetric principal channel including a principal uplink channel and a principal downlink channel" in line 2-3 of claim 1, pg 3.

Claim 1 also recites "... at least one determined time (t<sub>0</sub>) on **the principal channel**, so as to enable synchronization of the supplementary channel in a terminal, ..." in line 10 of claim 1, pg 3. It appears that the principal channel should be the downlink principal channel.

Appropriate correction is required.

### ***Double patenting***

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140

Art Unit: 2617

F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

**6. Claims 1-24 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 26-46 of application number**

**11/547,930.** Although the conflicting claims are not identical, they are not patentably distinct from each other because they claim for the same subject matter of a cellular radiotelephony system.

Some comparisons of the claims of two copending applications are shown as below:

10/589542 (claim 1, 19, 23-24)	<b>11/547,930</b> (claims 26, 38, 45- 46)
1. Cellular radiotelephony signal comprising:a two-directional symmetric principal channel including a principal uplink channel and a principal downlink channel, particularly for low or medium speed transmission of signalling and control data and information; and at least one supplementary channel assigned to a downlink only, particularly for transmission of data at high speed, making use of a multicarrier technique for distribution of data in the time/frequency space, and with a sub-frame type structure, wherein the beginning of at least one sub-frame of the supplementary channel is offset by a time interval with a determined duration not	26. Cellular radiotelephony signal comprising:a main symmetric two-directional channel comprising a main uplink and a main downlink, particularly transmitting signalling and control data and information at low or medium speed;at least one supplementary channel assigned to the down direction only, particularly for high speed data transmission, using a multi-carrier technique for distribution of data in the time/frequency space, and with a structure in predefined entities each including a predetermined number of symbols,wherein at least one symbol of each entity of the supplementary channel

<p>equal to zero (.DELTA.t) with respect to at least one determined time (t.sub.0) on the principal channel, so as to enable synchronization of the supplementary channel at sub-frame level in a terminal, by detection of said determined time (t.sub.0) and by adding said time interval (.DELTA.t).</p> <p>19. Synchronization process for a supplementary channel associated with a symmetric two-directional principal channel, said symmetric two-directional principal channel comprising a principal uplink channel and a principal downlink channel, particularly for low or medium speed transmission of signalling and control data and information, said supplementary channel being assigned to the downlink only, particularly for transmission of data at high speed, making use of a multicarrier technique for distribution of data in the time/frequency space, and with a sub-frame type structure, wherein the process comprises synchronizing the supplementary channel at sub-frame level, wherein synchronizing includes the following steps: a) detecting a determined time (t.sub.0) on the principal channel; and b) obtaining the beginning of a sub-frame of the supplementary channel, by offsetting the determined time (t.sub.0) detected in a) by a time interval with a determined duration not equal to zero (.DELTA.t).</p>	<p>comprises a position identifier used to identify the position of said symbol in said entity, such that a terminal can read the position identifier of said symbol and use it to deduce the beginning of the next entity, thus obtaining synchronisation of the supplementary channel at the level of the entity considered, and wherein said predefined entities are sub-frames or frames of the supplementary channel.</p> <p>38. Method for synchronisation of a supplementary channel associated with a symmetric two-directional main channel, said symmetric two-directional main channel comprising a main uplink and a main downlink, particularly for transmission of signalling and control data and information at low or medium speed, said supplementary channel being assigned to the down direction only, particularly for transmission of high speed data using a multi-carrier technique for distribution of data in the time/frequency space, and with a structure in predefined entities each including a predetermined number of symbols, the method comprising: synchronizing the supplementary channel at a level of the entity considered, wherein synchronizing comprises: detecting and reading a position identifier of a current symbol on the supplementary channel, said position identifier being used to identify the position of said symbol in the entity to which it belongs; and deducing the beginning of the next entity as a function of the position identifier of the current symbol, and wherein said predefined entities are sub-frames or frames of the supplementary channel.</p>
<p>23. Terminal of a cellular radiotelephony system, said terminal comprising: a transmitter for transmitting a principal</p>	<p>45. Terminal in a cellular radiotelephony system, comprising: a transmitter, which transmits a main uplink, a receiver, which</p>

<p>uplink channel, a receiver for receiving a principal downlink channel, said principal uplink and said principal downlink forming a symmetric two-directional principal channel particularly for low or medium speed transmission of signalling and control data and information, and a receiver for receiving at least one supplementary channel, said supplementary channel being assigned to the downlink only, particularly for transmission of data at high speed, making use of a multicarrier technique for distribution of data in the time/frequency space, and with a sub-frame type structure, and a synchronizer, which synchronizes the supplementary channel at sub-frame level, wherein the synchronizer detects a determined time (t.sub.0) on the principal channel: and obtains the beginning of a sub-frame of the supplementary channel, by offsetting the detected time (t.sub.0) by a time interval with a determined duration not equal to zero (.DELTA.t).</p> <p>24. Base station of a cellular radiotelephony system, including: a receiver, which receives a principal uplink channel, a transmitter, which transmits a principal downlink channel, said principal uplink channel and said principal downlink channel forming a symmetric two-directional principal channel particularly for low or medium speed transmission of signalling and control data and information, a transmitter, which transmits at least one supplementary channel, said supplementary channel being assigned to a downlink only, particularly for transmission of data at high speed, making use of a multicarrier technique for distribution of data in the time/frequency space, and with a sub-frame type</p>	<p>receives a main downlink and a receiver, which receives at least one supplementary channel, said main uplink and said main downlink forming a symmetric two-directional main channel, particularly for low or medium speed transmission of signalling and control data and information, said supplementary channel being assigned to the down direction only, particularly for transmission of high speed data, using a multi-carrier technique for distribution of data in the time/frequency space, and with a structure in predefined entities each including a predetermined number of symbols, a synchronizer, which synchronizes the supplementary channel at a level of the entity considered, wherein the synchronizer comprises: elements that detect and read a position identifier of a current symbol on the supplementary channel, said position identifier being used to identify the position of said symbol in the entity to which it belongs; and elements that deduce the beginning of the next entity as a function of the position identifier of the current symbol, and wherein said predefined entities are sub-frames or frames of the supplementary channel.</p> <p>46. Base station in a cellular radiotelephony system, the base station comprising: a receiver, which receives a main uplink, a transmitter, which transmits a main downlink, and a transmitter, which transmits at least one supplementary channel, said main uplink and said main downlink forming a symmetric two-directional main channel particularly for low or medium speed transmission of signalling and control data and information, said supplementary channel being assigned to the down direction only,</p>
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structure, means of offsetting the beginning of at least one sub-frame of the supplementary channel, by a time interval with a determined duration not equal to zero (.DELTA.t) from a determined time (t.sub.0) on the principal channel, so as to enable synchronization of the supplementary channel at sub-frame level, in a terminal, by detection of said determined time (t.sub.0), and adding said time interval (.DELTA.t).	particularly for high speed data transmission, using a multi-carrier technique for distribution of data in the time/frequency space, and with a structure in predefined entities each including a predetermined number of symbols, wherein the base station is configured to insert a position identifier in at least one symbol of each entity in the supplementary channel, said position identifier being used to identify the position of said symbol in said entity, such that a terminal can read the position identifier of said symbol and use it to deduce the beginning of the next entity, thus obtaining synchronisation of the supplementary channel at the level of the entity considered, and wherein said predefined entities are sub-frames or frames of the supplementary channel.
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This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**7. Claims 1-18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.**

Claims 1-18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 1-18 appear to define a cellular radiotelephony signal. Note: "A transitory, propagating signal ... is not a



Art Unit: 2617

“process, machine, manufacture, or composition of matter.” Those four categories define the explicit scope and reach of subject matter patentable under 35 U.S.C. § 101; thus, such a signal cannot be patentable subject matter.” (*In re Petrus A.C.M. Nuijten*; Fed Cir, 2006-1371, 9/20/2007).

Should the full scope of the claim as properly read in light of the disclosure encompass non-statutory subject matter such as a “signal”, the claim as a whole would be non-statutory. Should the applicant’s specification define or exemplify the computer readable medium or memory (or whatever language applicant chooses to recite a computer readable medium equivalent) as statutory tangible products such as a hard drive, ROM, RAM, etc, **as well as** a non-statutory entity such as a “signal”, “carrier wave”, or “transmission medium”, the examiner suggests amending the claim to include the disclosed tangible computer readable storage media, while at the same time excluding the intangible transitory media such as signals, carrier waves, etc.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining

Art Unit: 2617

obviousness under 35 U.S.C. 103(a) are summarized as follows: **(See MPEP Ch. 2141)**

Determining the scope and contents of the prior art;  
Ascertaining the differences between the prior art and the claims in issue;  
Resolving the level of ordinary skill in the pertinent art; and  
Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

**8. Claims 1-11 and 14-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2004/0017777 Chaudhuri et al. (hereinafter Chaudhuri), in view of US 6,940,827, Li et al. (hereinafter Li).**

As to claim 1, Chaudhuri discloses cellular radiotelephony signal comprising:  
a two-directional symmetric principal channel including a principal uplink channel and a principal downlink channel, particularly for low or medium speed transmission of signalling and control data and information (Chaudhuri: pars 0003-0005, CDMA, OFDM systems, par 0026, UMTS wireless phone system. It is well known in the art that in CDMA systems, such as IS-95 or cdma2000 technology, a series of channels, either downlink or uplink have been specified, such as pilot, sync, paging, access, forward and reverse (fundamental and supplemental) traffic channels, in which the control channels are often for low or medium speed transmission of signaling and control information);  
and

Chaudhuri further discloses at least one supplementary channel, particularly for transmission of data at high speed, making use of a multicarrier technique for distribution of data in the time/frequency space (Chaudhuri: par 0003, OFDM system), and with a sub-frame type structure (Chaudhuri: par 0031, 16 slots a frame (e.g. sub-

Art Unit: 2617

frame structure)), Chaudhuri further discloses the frame offset between downlink channels (could be between principal and supplementary) and detects the time offset at the mobile station for channel synchronization (Chaudhuri: Fig 5, pars 0038, 0041).

Chaudhuri does not expressly disclose the supplementary is for downlink only and sub-frame structure associated with of the supplementary channel associated with time/frequency space (OFDM).

Li teaches a cdma and OFDM system where the OFDM communication is for downlink communication only (Li: Fig 11, col 10, lines 36-53). The OFDM downlink channel frames possess sub-frame structure (Li: Fig 9, PN's, OFDM symbols) and with time offset (Li: col 6, lines 16-35, guard time interval at the beginning of the frame of each symbol, such guard time can be offset with the cdma channels)

Therefore, consider both Chaudhuri and LI's teachings as a whole, it would have been obvious to one of skill in the art at the time of invention to modify Chaudhuri's system of principal and supplemental communication system and synchronization methods with frame offset by incorporating Li's teachings on downlink OFDM channel and the sub-frame structure and time offset in order to provide a hybrid CDMA-OFDM wireless communication system and synchronization of different channels at mobile station with the frame offset between channels to avoid interference.

As to claim 2, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 1, the structure of the principal channel being organized in frames, wherein the determined time ( $t_{sub.0}$ ) on the principal channel is a beginning of a frame of the principal channel (Chaudhuri: pars 0003, cdma, in which sync frames (26.67 ms) traffic frames (20 ms), or superframes (80 ms) are specified in IS-95 standard, also par 0031, UMTS standards, 10 ms frames. The frame boundary being the determined time on the principal channel).

As to claim 3, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 2, wherein the beginning of each frame of the principal channel forms a respective one of the determined times ( $t_{sub.0}$ ) (see analysis of claim 2, frame boundary).

As to claim 4, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 2, wherein the beginning of only some frame(s) of the principal channel called synchronization frames forms a respective one of the determined times ( $t_{sub.0}$ ) (see analysis of claim 1, synch frame, for example).

As to claim 5, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 4, wherein the principal channel and/or the supplementary channel transmit(s) identification information of at least one synchronization frame (Chaudhuri: sync

Art Unit: 2617

channel, see claim 1, Li: Figs 8-9).

As to claim 6, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 1, the principal channel having a structure organized in frames each including a plurality of slots, wherein the determined time ( $t_{sub.0}$ ) on the principal channel is a beginning of a slot of the principal channel (Chaudhuri: par 0031, 16 slots in one 10 ms frame).

As to claim 7, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 6, wherein the beginning of only some slot(s) of the principal channel called the synchronization slots, forms a respective one of the determined times ( $t_{sub.0}$ ) (Chaudhuri: par 0033).

As to claim 8, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 7, wherein the principal channel and/or the supplementary channel transmit(s) identification information of at least one synchronization slot (Chaudhuri: par 0033, SCH transmits primary and secondary synchronization code for mobile device to acquire slot synchronization).

As to claim 9, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 1, the principal channel having a structure organized in frames each comprising a plurality of slots, each slot comprising a plurality of signal units (chips) (Chaudhuri: par

Art Unit: 2617

0031, 16 slots per frame, 0038, chips), wherein the determined duration of said time interval (.DELTA.t) is equal to k times the duration of a signal unit, where k is an integer number (Chaudhuri: par 0038, the frame offset may be anywhere from zero to 38144 chips, measured in increments of 256 (e.g. k=256) chips).

As to claim 10, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 9, wherein k is equal to 256 (Chaudhuri: par 0038, the frame offset, measured in increments of 256 chips, also see claim 9).

As to claim 11, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 1, wherein the principal channel and/or the supplementary channel transmit(s) information about said duration of the time interval (.DELTA.t) (Li: Fig 9, PNs).

As to claim 14, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 1, wherein the principal channel uses a spectrum spreading access (CDMA) technique (see analysis of claim 1).

As to claim 15, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 1, wherein said supplementary channel uses a multicarrier technique based on an OFDM modulation (see analysis of claim 1) or an IOTA modulation.

Art Unit: 2617

As to claim 16, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 1, wherein the principal channel firstly transmits a notification prompting said terminal to perform said synchronization of the supplementary channel at sub-frame level, to swap the terminal from the principal channel to the supplementary channel (Chaudhuri: pars 0012, 0043, 0048, implied as part of hand over process between principal and supplementary channels, here both channels utilize different technologies, see Li: Fig 11).

As to claim 17, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 16, wherein said notification comprises information about said duration of the time interval (.DELTA.t) and/or said determined time (t.sub.0) on the principal channel (Chaudhuri: Figs 5, 8, par 0014).

As to claim 18, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 16, wherein said notification is transmitted to a paging channel included in said principal channel (see analysis of claim 1).

As to claim 19, claim 19 is a method claim that recites limitations encompassed and necessitated by claims 1 and 23. Rejections of claims 1 and 23 are therefore incorporated herein (see analysis and rejections of claims 1 and 23).

As to claim 20, Chaudhuri as modified discloses process according to claim 19, wherein

Art Unit: 2617

said duration of the time interval (.DELTA.t) and/or said determined time (t.sub.0) on the principal channel is (are) fixed and known to a terminal at which said synchronization process is performed (Chaudhuri: pars 0049-0050, frame offset is relatively fixed).

As to claim 21, Chaudhuri as modified discloses process according to claim 19, wherein said duration of the time interval (.DELTA.t) and/or said determined time (t.sub.0) on the principal channel is (are) variable, (Chaudhuri: pars 0049-0050, variable between updates) and the principal channel and/or the supplementary channel transmit(s) information about said duration of the time interval (.DELTA.t) and/or said time (t.sub.0) (Chaudhuri: pars 0036, 0075, Li: Figs 8,9, PN offset indicating the time interval).

As to claim 22, Chaudhuri as modified discloses process according to claim 19, wherein it includes a preliminary step in which a notification is transmitted through the principal channel prompting a terminal to perform said step of synchronizing at sub-frame level of the supplementary channel, so as to swap the terminal from the principal channel to the supplementary channel (see analysis of claim 16).

As to claim 23, Chaudhuri as modified discloses terminal of a cellular radiotelephony system, said terminal comprising:

a transmitter for transmitting a principal uplink channel (Li: Fig 11: 1101), a receiver for receiving a principal downlink channel (Li: Fig 11: 1102), said principal uplink and said principal downlink forming a symmetric two-directional principal channel particularly for



Art Unit: 2617

low or medium speed transmission of signalling and control data and information (Li: Fig 11, also see analysis of claim 1), and a receiver for receiving at least one supplementary channel, said supplementary channel being assigned to the downlink only, particularly for transmission of data at high speed, making use of a multicarrier technique for distribution of data in the time/frequency space, and with a sub-frame type structure (Li: Fig 11: 1103, also see claim 1), and a synchronizer, which synchronizes the supplementary channel at sub-frame level (Chaudhuri: pars 0014, 0038 , Li: col 9, lines 35-55), wherein the synchronizer detects a determined time ( $t_{sub.0}$ ) on the principal channel: and obtains the beginning of a sub-frame of the supplementary channel, by offsetting the detected time ( $t_{sub.0}$ ) by a time interval with a determined duration not equal to zero ( $\Delta t$ ) (with Chaudhuri and Li's combined teachings, such steps would have been implied if not inherent, see Chaudhuri: 0038, 0041, Li: col 9, lines 35-55).

As to claim 24, Chaudhuri as modified discloses base station of a cellular radiotelephony system (Li: Fig 11), including: a receiver, which receives a principal uplink channel (Li: Fig 11: 1108, a CDMA receiver, also see analysis of claim 1), a transmitter, which transmits a principal downlink channel, said principal uplink channel and said principal downlink channel forming a symmetric two-directional principal channel particularly for low or medium speed transmission of signalling and control data and information (Li: Fig 11: 1108, a CDMA transmitter for downlink principal channel transmission, also see claim 1), a transmitter, which transmits at least one

Art Unit: 2617

supplementary channel, said supplementary channel being assigned to a downlink only, particularly for transmission of data at high speed, making use of a multicarrier technique for distribution of data in the time/frequency space (Li: Fig 11: 1110, OFDM transmitter for transmitting higher speed data, also see claim 1), and with a sub-frame type structure (Li: Fig 9, multiple PNs, and symbols), means of offsetting the beginning of at least one sub-frame of the supplementary channel, by a time interval with a determined duration not equal to zero ( $\Delta t$ ) from a determined time ( $t_{sub.0}$ ) on the principal channel (see analysis of claim 1), so as to enable synchronization of the supplementary channel at sub-frame level, in a terminal, by detection of said determined time ( $t_{sub.0}$ ), and adding said time interval ( $\Delta t$ ) (see analysis of claims 1, 23).

**9. Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chaudhuri, in view of Li, and further in view of US 2002/0187749 A1, Beasley et al. (hereinafter Beasley).**

As to claim 12, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 1 and detecting the beginning of a sub-frame, so as to enable synchronization of the supplementary channel at frame level by detecting the beginning of the next frame as a function of said synchronization at sub-frame level and said information (see claim 1, synchronized at frame boundary, or slot boundary), but does not expressly disclose wherein the principal channel and/or the supplementary channel

Art Unit: 2617

transmit(s) information about a rank within a frame of the structure of the supplementary channel, or the rank of said sub-frame.

Beasley, however, teaches establishing the rank between base station units or provide a sync signal to mobile units, mobile units becoming synchronized with a network and providing such synchronization information to base station and mobile synchronization process based on rank or priority (Beasley: par 0043). Consider Chaudhuri as modified and Beasley's teachings together, it would have been obvious to one of skill in the art at the time of invention to further modify Chaudhuri as modified's method by incorporating Beasley's teachings on rank in providing mobile synchronization such that the mobile synchronization would be done according to the priority.

**10. Claims 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chaudhuri, in view of Li, and further in view of US 2004/0181569 A1, Attar et al. (hereinafter Attar).**

As to claim 13, Chaudhuri as modified discloses cellular radiotelephony signal according to claim 12 but does not expressly disclose wherein the principal channel and/or the supplementary channel also transmit(s) information about a mode of transmitting sub-frames on the supplementary channel, said synchronization at frame level of the supplementary channel also depending on said information about the transmission mode. Attar, however, teaches various mode of operation in data transmission (Attar: pars 0026-0027, different multiplexing, par, 0046-0047, variable

Art Unit: 2617

rate mode, 0108, with different modulation formats in different slots (OFDM, CDM, etc. depending on data rate). Consider Chaudhuri as modified and Attar's teachings together, it would have been obvious to one of skill in the art at the time of invention to further modify Chaudhuri as modified's method by incorporating Beasley's teachings on providing mode of transmission within different portion of the frame based on transmission rate, modulation scheme etc. in order to provide mode information and synchronize mobile station accordingly.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUN SHEN whose telephone number is (571)270-7927. The examiner can normally be reached on Monday through Thursday, 9:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LunYi Lao can be reached on 571-272-7671. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2617

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/QUN SHEN/  
Examiner, Art Unit 2617

/LUN-YI LAO/  
Supervisory Patent Examiner, Art  
Unit 2617